Primary culture of freshwater prawn (Macrobrachium rosenbergii) in an integrated hydrophonics nutrient film technique system (NFT): nutrient deficiency and toxicity

ABSTRACT

The aim of this study was to evaluate the tolerance of Macrobrachium rosenbergii, and plant to different levels of inorganic fertilizer in an artificial integrated production system. The growth comparison of lettuce and Chinese cabbage in different culture media illustrated that Chinese cabbage is more sensitive to nutrient deficiency and lettuce performed better growth (quality and quantity) compared to the Chinese cabbage in lower concentration of nutrients. In this study, 0.1 EC culture media showed better performance in M. rosenbergii production followed by 0.5 EC treatment. The overall results illustrated that potassium (P), ammonia (NH3) and copper (Cu) toxicities inhibited growth of freshwater prawn (M. rosenbergii) in high level supplemental chemical fertilizer (>0.5 EC mS/cm). Meanwhile, the sufficient quantities of some essential nutrients for lettuce and Chinese cabbage can not be obtained from wastewater of prawn culture system.

Keyword: Macrobrachium rosenbergii; Integrated Culture System; Hydroponics System; Nutrient Deficiency; Mineral toxicity